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Intended for adaptation to local situations, the handbook was prepared to assist interested groups to determine whether a dental hygiene educational program is needed and feasible, and to supply basic guidelines for planning. The introduction deals with dental hygiene in preventive dentistry and the historical development of educational programs. "The Feasibility of Establishing a Program" concerns the advisory committee, need survey, parent institution, financial support, program director, faculty, students, patients, and sources of technical assistance. "Planning the Program" treats established patterns of preparation, objectives and the planning timetable, administrative policies, curriculum design, personnel required, student recruitment, public information, admission requirements, accreditation, and licensure. "Initial Expense and Annual Operation" covers costs connected with teaching facilities, equipment, furnishings, teaching aids, teaching materials, and supplies, reference materials, salaries, fringe benefits, laundry, and faculty travel. Development of a hypothetical dental hygiene program is outlined. Included in the appendix are curriculum and equipment outlines, including library acquisitions, and a listing of addresses of associations and publishers. (JK)

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Dental Hygienists

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PLANNING AN EDUCATION PROGRAM FOR

Dental Hygienists

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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Preface

This handbook was prepared to help interested groups determine if a dental hygiene education program is both needed and feasible; and if so, to supply some basic guidelines for planning.

In this connection, it is felt that only by putting in writing the ideas and concepts of those responsible for planning can such a project be carried to successful completion. Documentation of ideas and concepts and seeing them so formalized, will clarify and crystalize thinking about the education program.

Keep in mind that this handbook is just an aid, that it is not a panacea, and that its suggestions must be adapted to the local situation. By so using it, an advisory-liaison group can supply valuable advice and recommended courses of action. In this way the group will be doing the parent institution, the dental profession, and the community a real service.

We are indebted to a number of people for their timely and helpful suggestions in the preparation of this handbook. Their contributions are acknowledged with sincere appreciation.

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Introduction

This section includes a brief account of the evolution of a system of preventive dentistry known as dental hygiene and the creation of a category of personnel—dental hygienists—to provide the preventive services. It includes also an account of the development of programs to educate dental hygienists, a brief assessment of the current status of programs in dental hygiene education and the projected need for additional programs.

Preventive Dentistry and Dental Hygiene

It is a matter of record that for more than a century, members of the dental profession have been concerned with providing services which would prevent dental diseases and improve oral health. Pioneers of the concept of preventive dentistry advocated teaching patients proper oral hygiene practices, emphasized the role of diet in relation to oral health, and developed a systematic procedure of oral prophylaxis (scaling and polishing of the teeth).

While dental practitioners endorsed the concept of preventive dentistry, then, as now, many were fully occupied in the treatment of dental diseases. At the beginning of this century, several dentists independently advanced the idea that a dental auxiliary be created to provide the preventive services of oral prophylaxis and patient education.

However, it remained for one dentist, Dr. Alfred C. Fones of Bridgeport, Connecticut, to act upon the suggestions. Dr. Fones began by teaching his office assistant to scale and polish teeth. Once she had mastered the techniques, this first dental hygienist provided regular oral propyhlaxis and dental health instruction for the patients in Dr. Fones' practice. The results were gratifying. To quote Dr. Fones, "The dental hygienist was created from the realization that mouth hygiene was a necessity, that the average dental practitioner could not give sufficient time to it and that the toothbrush alone would never produce it."

While the prime function of the dental hygienist has changed little in the last half century, there have been changes in dental hygiene practice. Techniques have improved, instruments have been refined, ultrasonic instruments to assist in the removal of stains and deposits have been devised, the variety of personal oral hygiene aids has increased, tests

to aid the dentist in diagnosis of various oral conditions have been developed, and agents to control the incidence of dental caries have been discovered. All of these things enable the dental hygienist to provide the patient with a more complete oral prophylaxis and better dental health instruction. (See Dental Hygiene Practice in the Appendix.)

Early Development of Dental Hygiene Programs

In 1913 Dr. Fones was successful in obtaining an appropriation to conduct a demonstration of the value of an educational and preventive dental care program in elementary schools. To carry out this project it was necessary to train personnel. In September, 1913, the first course for dental hygienists was offered in quarters set up by Dr. Fones adjacent to his offices in Bridgeport, Connecticut. Twenty-seven women graduated from this first class and a year later, in the fall of 1914, ten of these graduates began the pioneer work in the Bridgeport public schools. The success of this first educational and preventive dental service is a milestone in the history of dental hygiene.

Dr. Fones trained two more groups of women (1915 and 1916) and a total of 97 were graduated from the original school. Organized educational institutions then took up the training. In 1916, Forsyth Dental Infirmary in Boston, Columbia University in New York City, and in 1917, the Eastman Dental Dispensary in Rochester, New York, initiated one year courses in dental hygiene. In 1918, the University of California initiated a two-year course and dental hygiene programs were started at the University of Minnesota in 1920, and the University of Michigan, Temple University and the University of Pennsylvania in 1921. Growth in the number of dental hygiene programs continued, but the greatest growth did not occur until after the second world war.

Growth in Number of Programs

As noted, the first growth spurt followed the close of World War II. The second started after 1960 when attention began to be focused on the increased use of dental auxiliaries as a means of meeting an anticipated increase in the demand for dental care. The accelerated rate at which dental hygiene programs have been established in recent years is illustrated by the following figures:

THE FIRST THIRTY YEARS
(In Ten-year Increments)

	New Programs	Total Programs
1916–1925	10	10
1926–1935	2	12
1936–1945	3	15

THE SECOND TWENTY YEARS

(In Five-year Increments)

	New Programs	Total Programs
1946–1950	11	26
1951–1955	6	32
1956–1960	5	37
1961–1965	20	57

The accelerated rate at which programs were established from 1961 to 1965 is continuing in the current five-year period, 1966–1970. Twenty-six educational institutions have indicated they plan to establish dental hygiene programs. Several of these programs are in operation and the others plan to accept students in the 1968–1969 academic year. Since other colleges and universities are known to be investiagting the feasibility of establishing dental hygiene programs, this current expansion is expected to continue through the early 1970's.

Growth in Number of Annual Graduates

The increase in the number of dental hygiene programs has resulted in a significant increase in the total work force in dental hygiene. In the five-year period from 1956–1960, a total of 4,776 dental hygiene students were graduated; from 1961–1965 the number increased by slightly more than one-third with a total of 6,419 graduates. It is estimated that in the period from 1966–1970, a total of 9,452 dental hygiene students will be graduated. This is almost double the number graduated in the first five-year period.

The significance of the increase in numbers of graduates becomes even more apparent when it is noted that in 1956 there were 902 graduates and that in 1970 the number will have grown to an estimated 2,250. However, this number falls far short of the estimated annual need of 5,500 to develop and maintain a minimal work force in dental hygiene.

A word of caution. These are national estimates. The local, State or regional need must be assessed on the basis of information related to the area to be served by the proposed dental hygiene program.

The Feasibility of Establishing a Program

Introduction

The impetus for the development of new schools of dental hygiene usually stems from either the dental profession or an institution of higher learning, and at times it is a joint effort. In the first instance, the dentists in a given area identify a need for additional numbers of dental hygienists and seek a way to meet this need; in the second, universities and colleges (particularly junior or community colleges) seek to broaden the educational opportunities afforded their students.

In either situation, certain steps must be taken to determine whether it is feasible to establish a program.

When the dental profession, usually through a committee appointed by the State or local dental society, documents a need for more dental hygienists in the area, the next step is to locate a college or university which can provide the facilities and resources required in a dental hygiene program.

When a college or university explores the possibility of initiating a dental hygiene program, the need for dental hygienists and the potential employment opportunities must be determined before further consideration is given to the establishment of a program.

When the need for a program is established and when a college or university agrees to assume the administrative responsibility, there remain several important questions which must be answered:

> Are funds available to initiate the program, to provide a properly equipped teaching facility, and to operate the program on a continuing basis?
>
> Can an academically qualified, experienced person be found to plan and to direct the program?

Is there a source of potential teachers including dental and dental hygiene educators?

Is there a continuing source of qualified students?

Are patients readily available for the clinically-oriented portions of the curriculum?

The answers to these questions must be in the affirmative if there is to be reasonable assurance that the program can be initiated and continued successfully. Each of the questions is discussed briefly later in this section.

Advisory Committee

The exploratory or preplanning phase just described is often the responsibility of an Advisory (or Study) Committee. Whether this phase is initiated by the dental association or the educational institution, committee personnel should include both dentists and educators. The committee also should include an administrative officer of the educational institution, a representative of the State Board of Dental Examiners, representatives of the State and local dental hygiene associations, and interested community leaders. Each of these individuals will contribute valuable information and assistance.

Survey of Need

Reference has been made to the importance of determining the need for more dental hygienists and the reasonable assurance of employment opportunities for graduates.

In some cases, State or local dental societies have distributed a simple questionnaire to their members to determine the extent to which dental auxiliaries are employed or would be employed if available. The responses have provided a means for estimating the current and future employment opportunities for dental hygienists.

This type of information, and an assessment of the resources of the educational institution, will help the committee to decide whether it is feasible to establish a program. If it is considered feasible, the information also will help to determine the size of an entering class.

A sample survey form which can be adapted to your needs is included in the Appendix.

In other States, the resources of the State departments of health and education, State or regional dental and dental hygiene schools, and other health agencies have been used

to develop detailed information for planning the education of dental auxiliaries as well as other allied health personnel.

Parent Institution

In previous paragraphs, the parent institution is described as a junior or community college, a college or university. Whether a program in dental hygiene education is established in affiliation with a dental school or within another institution of higher learning, the parent institution must be approved or eligible for approval by an accrediting agency recognized by the National Commission on Accrediting.

Five Important Questions

Financial support. In seeking a source of funds to establish and operate a dental hygiene program, it must be recognized that the cost per student will exceed the cost of programs of comparable length in other allied health professions disciplines. Most of the increased cost will relate to the initial expense of providing an adequate clinical facility and the annual costs of program operation.

The availability of funds through the State Department of Education should be investigated. The Division of Dental Health of the Bureau of Health Manpower may be contacted to determine the availability of Federal funds.

Program Director. Academically qualified and experienced administrators are in short supply. The American Dental Hygienists' Association has established a faculty registry and may be able to provide some assistance in locating a program director.

Faculty. It should be determined whether the college or university has faculty and staff available for teaching the required arts, social science and basic science courses. In addition, dentists and dental hygienists will be needed for classroom instruction, clinical instruction and supervision. The availability of interested and able dental and dental hygiene educators should be investigated.

Students. The successful completion of the program in dental hygiene education requires the selection of students with good academic ability. Some schools have found it desirable to have two or more applicants for each place in the class to insure the selection of a group of qualified students.

Patients. There must be an adequate supply of patients for dental hygiene clinical practice. Approximately 100 patients will be needed each year for each student in a two-

year program, and the majority of these patients should be drawn from a typical adult population. Potential sources of other patients are public and parochial schools, the college community, and institutions for the care of special groups such as handicapped children and the chronically ill and aged.

Sources of Technical Assistance

Information and technical assistance is available from several sources:

1. The Council on Dental Education of the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611. The Council is actively concerned with the education of all dental personnel, including the dental hygienist. Upon request, they will send "Policies and Guidelines for the Training of Dental Auxiliaries" and other pertinent materials.
2. The Division of Educational Services of the American Dental Hygienists' Association, 211 East Chicago Avenue, Chicago, Illinois 60611. Upon request, the Director will provide information, consultation, technical assistance, and student recruitment material.
3. The Division of Dental Health, Bureau of Health Manpower, U.S. Department of Health, Education and Welfare, Bethesda, Md. 20014. Upon request, professional and technical personnel of the Division will provide consultation and guidance in program planning and the design of facilities.

In addition to the agencies listed above, information and technical assistance also may be provided by:

1. A State or area college of dentistry, or school of dental hygiene;
2. State and local dental and dental hygiene societies; and
3. The dental divisions of State and local health departments.

Feasibility Determined

If, after thorough study, it seems feasible to establish a program in dental hygiene education, the educational institution should initiate a search for a program director.

It is important that a director be employed well in advance of the time the first students are admitted. At least a year will be needed to plan the program and provide a teaching facility designed to meet the requirements of the program.

At this point, the Advisory Committee will have completed the initial assignment. The Committee should be dissolved when the investigation is concluded and the recommendations are made. However, a permanent Advisory Committee should be appointed to serve as the liaison between the school, the dental and dental hygiene professions, and the community. Some members of the original committee may be willing to serve in this new capacity.

In addition, the director may wish to consult with members of the Advisory Committee in:

planning the curriculum;
determining the need for space and equipment;
recruiting qualified instructors;
establishing criteria for student selection;
recruiting students; and
developing community interest and cooperation.

It is suggested that appointments to a permanent Advisory Committee be made on a rotational basis.

Planning the Program

Before the planning begins, a decision must be made about the type of educational program tc be offered. This will be determined, to a great extent, by the general objectives of the parent institution. That is, the educational institution may prepare students for immediate entry into occupational fields at the associate degree level, it may provide initial college level courses as prerequisite to higher education, or it may award bachelors degrees and provide opportunities for education at the graduate level.

A brief review of the design of the existing programs in dental hygiene education follows.

Patterns in Dental Hygiene Education

Established dental hy ·e · programs follow these general patterns:

- The majority of programs offer a two-year curriculum which leads to an associate degree in arts or science, or a certificate or diploma in dental hygiene. Students are acce· te· upon graduation from high school. Graduates of approved programs are qualified for licensure and most employment opportunities.

- Several programs which are affiliated with degree granting colleges and universities offer a two-year dental hygiene program with the option of a bachelors degree upon the completion of two additional years of college work. The student who desires to take courses for personal enrichment may elect to meet the requirements for a Bachelor of Arts degree.

  In other schools, the student may complete the requirements for the bachelors degree with a major in education or in public health dental hygiene. These graduates are qualified for entering positions in dental hygiene education or for some supervisory positions in dental public health agencies.

A few in this group of schools now require one year of liberal arts for admission to the dental hygiene program and a 1–2–1 pattern of dental hygiene education has evolved. That is, students may elect to seek employment at the end of the third year when the requirements for the certificate in dental hygiene have been satisfied, or may elect to complete the requirements for the bachelors degree with one additional year of study.

- A few schools offer *only* a four-year program leading to a Bachelor of Science in Dental Hygiene. With one exception these schools require two years of liberal arts before admission to the two-year dental hygiene curriculum. The exception is the school which incorporates elements of the dental hygiene curriculum into each of the four years of the program.

- Several schools now provide graduate programs leading to a masters degree in administration, teaching or research in the field of dental hygiene. These programs usually are affiliated with dental schools.

Because of the many variables in the development of a bachelors degree program, and because there is a demonstrated need for a significant increase in the number of well-qualified clinical dental hygienists, this handbook will limit discussion to the development of a two-year educational program.

The need for more clinical dental hygienists and for more programs in dental hygiene education, however, creates a parallel need for qualified administrators and teachers. Educational institutions with the resources to provide well-designed bachelors and masters degree programs are urged to give consideration to this phase of the total problem.

Objectives and the Planning Timetable

Planning is facilitated when objectives are defined and arranged in order of priority. Dates for the start and completion of each objective are then estimated. Together, the objectives and dates provide a planning timetable.

Dates will probably overlap and deadlines may have to be revised as planning progresses. However, a timetable will help to keep first-things-first.

Accomplishment of the objectives which relate to getting the program organized and into operation will be comparatively short-range. Examples of such objectives are:

Administrative policies
Curriculum design
Personnel requirements

Facility planning
Admission requirements
Recruitment of applicants

There will be other objectives which are related to the organization and initiation of the program. These will tend to be long-range and will relate to such matters as:

The probable need to increase the size of the class to meet the demand for more dental hygienists; and

The development of continuing education programs for registered dental hygienists.

Administrative Policies

To facilitate program planning, it is important to know the policies and procedures for the administration of the college. For example, the director must be familiar with the organizational structure of the college, must know the channels of administration and, in general, must know the function of each administrative office and the services each office will provide for the dental hygiene program and the dental hygiene students.

Each college or university will differ in some degree, but the following matters should be considered:

- What will be the status of the dental hygiene program? A school? A department? A curriculum? A program?
- To whom will the director be responsible?
- Who will award the associate degree or certificate?
- How will financial matters be handled?
- How will equipment, teaching materials, and supplies be ordered?
- What resources of the college will be available for student recruitmment, student selection and admission, student counseling?
- Will the dental hygiene students be eligible for loans and scholarships?
- On what basis will tuition and fees be assessed?
- Who will provide the instruction in the required arts, social science and basic science areas?
- Will the cost of this instruction be charged to the program on a per capita basis or will the cost be absorbed by the college?

These questions will suggest others which will need to be answered in order to establish the new program on the same administrative level as other comparable programs in the college.

Curriculum Design

Basic to planning the program is the design of the curriculum. Each subject area should be developed as a part of the total effort toward realizing the educational goal. Simply defined, this goal is to produce a skilled and knowledgeable clinical dental hygienist who is prepared to provide an important health service.

The components of a two-year dental hygiene curriculum are identified by the Council on Dental Education. Subject areas are grouped under three major headings with recommendations for the total number of hours of instruction in each major division. (See Dental Hygiene Curriculum in the Appendix.)

Within the general guidelines provided by the Council on Dental Education, the directors of dental hygiene programs are encouraged to develop curriculums which will meet the educational goals of their programs. To this end, thought should be given to the questions of *why* each subject area is included and *what* the instruction in a specific subject is expected to contribute to the knowledge and skill of the dental hygiene student in preparation for dental hygiene practice.

In education today, there is increasing emphasis on designing "open end" curriculums so that graduates of a program may continue their education without loss of college credit. This factor should be recognized when planning a curriculum.

The resources of the college should be fully explored. When it can be arranged, the dental hygiene students should be enrolled in established courses in the required arts, social science and basic science subject areas. This is important if the program is to be developed as economically as possible. It also serves to establish the level of instruction and provides some assurance that full college credit will be granted for courses completed.

Personnel Required

Able, experienced and interested personnel are an important component of a dental hygiene education program. In view of the shortage of qualified teachers, the selection of personnel should be given careful consideration.

The greatest concern will be the recruitment of administrative and teaching personnel. However, consideration must also be given to the selection of those individuals who will serve in secretarial, clerical and custodial capacities.

The educational institution, through the respective departments of the college or university, usually will select the faculty members who will teach in the arts and sciences

subject areas. The college or university also may maintain a personnel service which will assist in the selection of personnel for secretarial, clerical and custodial positions.

However, the program director must be actively involved in the recruitment and selection of the dentists and dental hygienists who will provide classroom and clinical instruction and clinical supervision. Suggestions concerning the academic and experience qualifications of administrators and teachers are provided by the Council on Dental Education in "Policies and Guidelines." (See Page 8.)

In the following paragraphs, brief descriptions of the responsibilities of faculty members are presented to assist the planners in determining the kinds of competencies they are seeking when recruiting faculty.

Administrative personnel. There are two major areas of administrative responsibility. One is the administration of the dental hygiene program. The other is the supervision of the dental hygiene clinic. In order to comply with State dental practice acts a licensed dentist must be available to supervise the patient service aspects of dental hygiene education.

Dental hygiene programs which are an integral part of a dental school usually list the dean of the dental school or the chairman of a department as the supervising dentist. As a rule, these programs are administered by a dental hygienist director.

Programs which are not directly affiliated with a dental school may either:

satisfy the requirements by appointing a dentist to fill both capacities—supervising dentist and director; (In this case, a dental hygienist may be named as assistant director and given administrative responsibilities.)

or

satisfy the requirements by appointing a dentist to serve part-time in the position of supervising dentist. (In this case, the supervising dentist must be present when the clinic is in operation and patients are receiving treatment. A dental hygienist may direct the program.)

Whether a dentist or a dental hygienist, the director will be responsible for administrative duties which include:

curriculum evaluation and revision;
class schedules, teaching schedules;
operating budget;

requisition of teaching materials;
acquisition of library and reference materials;
maintenance and repair of equipment;
public information program;
student recruitment;
student admissions;
student counseling; and
other duties which are procedures of the
educational institution of which the program is a part.

The director also will be expected to develop and maintain liaison with:

other departments in the college or university;
local and State dental societies;
local and State dental hygiene societies; and
State boards of dental examiners.

Other faculty. The director and the supervising dentist may be responsible for instruction in some courses. How much time will be devoted to instruction will depend upon the size of the program and the time needed for administration.

The policies of the educational institution may govern the amount of time each faculty member will devote to lectures, laboratory and clinical instruction. In any event, each faculty member should have time free for study and class preparation.

Dentists or dental hygienists selected to teach specific courses should be qualified by education and experience to teach the subject matter. For example, a dentist or dental hygienist may teach dental anatomy (tooth morphology), a physician or a dentist may teach general pathology, a dentist may teach oral pathology. Local dentists with advanced education in the dental specialties can make valuable contributions to the educational program. Examples of a way in which the need for instructors may be determined is given in "An Illustration" beginning on page 25.

When a subject is taught by lecture or demonstration and there is no laboratory instruction, class size is not a critical factor. However, for a course which includes laboratory instruction, it will be necessary to provide laboratory assistants. The ratio of instructor to student will vary from 1:8 to 1:12, depending upon the policies of the college or university.

In some areas of clinical practice, one instructor may be able to teach only two or three students at a time. For example, practice in the exposure of dental radiographs may

be the responsibility of one instructor. If so, it will be necessary to schedule small groups of students over a period of time.

In clinical practice of prophylaxis techniques, full use of the teaching facility will make it necessary to provide an adequate number of clinical instructors. Dental hygiene educators suggest a ratio of one instructor to each five or six students.

A complete and thorough oral prophylaxis is one of the most effective preventive dental treatments known today. Because dental hygienists in private practice spend the major portion of their time providing this form of patient care, it is important that students receive the best possible instruction.

The importance of careful selection of clinical instructors cannot be overemphasized. The recommendations of the Council on Dental Education stress the academic and experience qualifications of dental hygiene faculty members.

Student Recruitment

An effective recruitment program is needed to insure a sufficient number of applicants from which to select qualified students.

With growing emphasis on careers in health occupations, there will be keen competition for students with an aptitude for and an interest in preparing to enter some phase of the healing arts.

When an educational program is being established, methods for the recruitment of students must be given attention. Experience indicates that dental hygiene students are very effective recruiters. The enthusiastic support of practicing dentists and dental hygienists—both individually and through their respective professional organizations—is also an important part of a successful recruitment program.

The junior and senior high schools throughout the area served by the dental hygiene school are centers which should become focal points in recruitment. Informed guidance counselors are important to the success of recruitment efforts among high school students.

In anticipation of the need for recruitment material, the Division of Dental Health prepared and published "The Registered Dental Hygienist—Facts for Counselors," a copy of which is available on request. Multiple copies are also available as needed.

Other informational materials describing the advantages of a career in dental hygiene are available from the American Dental Hygienists' Association. They are:

"Careers in Dental Hygiene"
6 panel, 2 color, 9″ x 12″ folder
Cost: None

"Dental Hygiene . . . A Career with a Future"
4 panel, 4 color, 9" x 4" folder
Cost: None

"A Bright Future"
28 minute, 16 mm color sound film
Cost: None on loan basis; purchase price, $100.00

"Dental Hygiene Aptitude Testing Program"
16 page, 2 color, 9" x 4" leaflet
Cost: None

There will be many opportunities for distributing the publications and for showing the film on such occasions as High School Career Days.

Public Information

A continuing program of public information will be needed (1) to create interest among potential students and (2) to build community understanding and support of the program. These efforts will be accomplished more easily if the educational institution has a public information staff. Such personnel can provide technical assistance and will have established working relationships with the local newspapers, radio and television stations. However, it will be necessary for the director of the program to supply facts about the dental hygiene program and the activities related to it.

As a part of the public information program, a leaflet will be needed which describes the dental hygiene program. Potential students will be interested in specific information about requirements for admission, the course of study and the employment opportunities. Parents will be interested in the costs of education—tuition and fees and all other items, including approximate costs of instruments (see Student Instruments in the Appendix), uniforms, books and supplies, and room and board.

A public information program also should be directed toward the recruitment of clinic patients. This activity should be undertaken with the endorsement of the local dentists, since it is one which will be needed to provide students with clinical experience in treating patients who vary in age and state of oral health.

Admission Requirements

In most schools the number of applicants for dental hygiene education has exceeded the available first year places. This is an enviable situation which permits the selection of those applicants who are best qualified.

When setting up the entrance requirements for a program, the specific criteria of the educational institution must be included. In addition, each dental hygiene program will establish its own special criteria which applicants must meet in order to be considered for acceptance. Selection of students usually is based on the extent by which they exceed the minimum requirements.

Schools of dental hygiene require applicants to present evidence of successful completion in high school of a science-oriented college preparatory course of study.

A typical high school course requires a minimum of 12 academic units and includes: (Two semesters equals one academic unit.)

English—3 or 4 units
Mathematics—2 or 3 units
Chemistry—1 unit
Biology—1 unit
Foreign language—2 units in same language
Social studies—2 units

Scholastic achievement and rank in the graduating class also are considered.

Many schools of dental hygiene require each applicant to take the Dental Hygiene Aptitude Test (DHAT) during the senior year of high school. The DHAT was developed by the American Dental Hygienists' Association and is recommended by the Council on Dental Education. Further information about this program may be obtained from the American Dental Hygienists' Association.

In addition, most dental hygiene education programs require each applicant to present scores from college entrance examinations such as the Scholastic Aptitude Test (SAT) or the American College Test (ACT). Some programs require one or more of the following:

Personal interview
Letters of recommendation
Evidence of good medical and dental health

When age is specified, the minimum age is usually 17 or 18 years. An upper age limit is seldom stated.

Note: A handbook which outlines the requirements for admission to each of the schools of dental hygiene is available from the American Dental Hygienists' Association.

Accreditation

The Council on Dental Education of the American Dental Association is the official accrediting agency and is responsible for the appraisal of programs in dental hygiene education. It is important to inform the Council, early in the planning stages, that a new program is being developed.

Formal accreditation should be sought only when the program is in full operation. It is suggested that plans for an accreditation visit be made early in the academic year in which the first students will graduate.

Information on accreditation procedures is included in the materials referred to in "The Feasibility of Establishing a Program," page 8.

Licensure

In order to practice dental hygiene, graduates must be licensed by the State Boards of Dental Examiners of the States in which they plan to practice. Graduation from an approved dental hygiene program is one of the criteria to be met in order to qualify for the licensure examinations which are in two parts—written and clinical.

The National Board Examination for Dental Hygienists was instituted in 1962. This is a written test given in the spring of the year in which the students will graduate. The National Board Certificate is accepted by most State Boards of Dental Examiners, and required by some, in lieu of the written portion of their examinations. Further information may be obtained from the Secretary, Council of National Board of Dental Examiners, 211 East Chicago Avenue, Chicago, Illinois 60611.

Other Matters

There are other matters which should be considered in planning the program. As examples, it should be determined whether there is a need to plan for student housing, recreation facilities and dining facilities.

Initial Expense and Annual Operation

Early in the planning, estimates of the funds needed to establish and operate the program should be prepared. Items to be considered when estimating the initial expense and the cost of annual operation follow.

Initial Expense

Principal items to be considered include:

- Teaching facility
- Equipment
- Furnishings
- Teaching aids
- Teaching materials
- Reference materials

Teaching facility. Cost of a new building may be estimated on the basis of local information on building costs for similar construction.

An estimate of the cost of renovating or remodeling an existing building will require a detailed inspection of the building to determine the amount of structural change involved, and the availability of utilities.

In either situation, the architect will provide valuable assistance.

It is important to consider that construction costs generally escalate with the passage of time. This escalation of costs should be a factor in developing construction cost estimates as there will almost always be a period of time between preparation of estimates and the actual receipt of bids on a project.

Equipment. At the outset, provision should be made to purchase the major items of equipment. (See Laboratory and Clinic Equipment in the Appendix.)

Furnishings. The purchasing agent for the college should be able to provide cost estimates for desks, chairs, file cabinets, typewriters, laboratory benches and other items commonly used in classrooms and offices.

Teaching aids. Equipment to be used in classroom and laboratory instruction will include items such as projectors, screens, tape recorders, closed circuit TV, cameras for recording oral conditions, microscopes and manikins for use in preclinical instruction.

Teaching materials. Films, filmstrips, slides, anatomical specimens and similar materials will be needed. Approximately $3,000.00 will provide the nucleus of a collection of selected teaching materials.

Reference materials. Books and periodicals will be required. (See Books and Periodicals in the Appendix.) Again, $3,000.00 will provide the nucleus of a specialized reference library for use by faculty members and students.

Annual Operation

Items to be considered include:

- Salaries
- Fringe benefits
- Equipment purchase and maintenance
- Teaching materials and supplies
- Clinical supplies
- Office materials and supplies
- Books and periodicals
- Laundry
- Faculty travel

Salaries. Salaries should be determined for the director, supervising dentist(s), dental hygienist instructors, and the secretarial–clerical staff.

An item to reimburse other departments in the college for instruction provided the dental hygiene students may also need to be included.

Fringe benefits. All contributions made on behalf of the employee for life insurance, hospitalization insurance, social security and retirement programs should be included.

Equipment purchase and maintenance. This includes the purchase price of new equipment and maintenance of all equipment.

Teaching aids, materials and supplies. Expendable materials and supplies used in laboratory courses will be included under this item as well as the usual supplies for the classroom. An amount should also be budgeted each year for purchase of additional teaching aids.

Clinical supplies. Expendable items such as paper goods, polishing agents, sterilizing solutions, X-ray film and medicaments will be included.

Office materials and supplies. Postage and telephone also may be included in this item.

Books and periodicals. This is to cover cost of additions to the reference materials, new books and renewal of journal subscriptions.

Laundry. This item may include rental or purchase and laundry of operating gowns, laboratory coats and uniforms for faculty.

Faculty travel. An item for transportation and per diem should be included to permit faculty members to attend professional meetings.

Miscellaneous. Many colleges and universities charge each department or program with a prorated share of the costs of administration of the college, operation of the physical plant and support of student services. These charges should be determined, where applicable, and should be included as budget items.

An Illustration

The development of a hypothetical program in dental hygiene education is presented to illustrate the matters which have been discussed in general terms in the preceding sections.

Administrative Policies and Agreements

As the first step in planning the program, the director, in consultation with administrative officers and department chairmen of the educational institution, was able to establish certain administrative policies and agreements. In this hypothetical situation, the following policies and agreements were established:

1. The parent institution, a junior college, is fully approved by the regional accrediting agency.
2. The college will award an associate degree upon completion of the requirements of the two-year curriculum in dental hygiene.
3. The dental hygiene program will have the same departmental status and the same administrative channels as comparable associate degree programs within the institution.
4. The director of the dental hygiene program will be responsible for preparing the annual operating budget and will be accountable to the finance officer and the chief administrator of the college for the disbursement of funds.
5. Minimum requirements for admission will be completion of a science-oriented program in high school and satisfactory scores on college entrance examinations and the Dental Hygiene Aptitude Test.
6. The admissions office of the college will assist in the processing of student applications.

7. The business office of the college will bill and collect student tuition and fees.
8. The student counseling service will be available to dental hygiene students.
9. The facilities and resources of the general college library will be available to the dental hygiene students.
10. The dental hygiene students will have the same obligations and the same rights and privileges as all other students.
11. The facilities and resources of the basic science departments (lecture and laboratory space, instructors) will accommodate an eventual class size of 32 dental hygiene students.
12. The facilities and resources of the arts and social science departments (lecture room space, instructors) will accommodate an additional 32 students each year.

Curriculum Development

After these important aspects of program planning were determined, the director began the detailed planning of the curriculum by meeting with the heads of departments in arts, social sciences, and basic sciences to discuss the educational objectives of the dental hygiene program. The recommendations of the Council on Dental Education concerning curriculum content were discussed.

The subject areas for which other departments in the college were prepared to provide instruction suited to the objectives of the dental hygiene program, included courses in the following subject areas:

Anatomy
Physiology
Chemistry
Microbiology
English (oral and written)
Psychology
Sociology

Next, attention was directed to the required subject areas in the dental sciences and dental hygiene theory and practice. Courses were identified, general objectives were outlined and the needs for faculty and teaching space were developed. By following this procedure,

a curriculum outline and a detailed list of the required faculty and teaching space were developed.

A few examples will serve as an illustration:

1. Course title: Dental Materials

   Objectives:

   a. To familiarize students with the properties of the materials commonly used in dentistry;

   b. To acquaint students with the laboratory procedures frequently completed in the private dental office, e.g. the investing and casting of metal restorations for single teeth;

   c. To develop skill in patient management.
   e.g. dental cements, impression materials, periodontal dressings.

   Teaching methods:

   a. Lecture

   b. Demonstration

   c. Laboratory exercises

   d. Programmed self-instruction

   e. Closed circuit television

   Faculty required:

   a. Lecturer—dentist (1)

   b. Laboratory assistants—dental hygienists (3) to assist the dentist responsible for instruction.

   Space required:

   a. Lecture room (seating capacity 32)—one hour per week for one semester. (Lectures can be given in the laboratory if lecture room is in use.)

   b. Laboratory (32 bench spaces)—two-hour block per week for one semester.

2. Course title: Introduction to Clinical Practice
   Objectives:

   a. To teach the students to recognize the normal structures and conditions of the soft and hard tissues of the oral cavity.

b. To teach the students the ways by which patients may maintain or or attain oral health.

c. To teach students the predisposing factors of oral diseases.

d. To develop skill in patient management.

e. To develop skill in instrument management.

f. To introduce the student to the clinical practice of techniques of preventive dental care.

Teaching methods:

a. Lecture

b. Demonstration and clinical observation

c. Programmed self-instruction

d. Manikin practice (laboratory and clinic)

e. Clinical practice

Faculty required:

a. Lecturer—dental hygienist (1)

b. Laboratory (32 bench spaces)—first semester, two two-hour

c. Clinic—supervising dentist (1)
dental hygienists (5)

Space required:

a. Lecture room (seating capacity 32)—two hours per week, two semesters.

b. Laboratory (32 bench spaces)—first semester, two, two-hour blocks per week.

c. Clinic—second semester, two two-hour blocks for eight weeks (16 stations), one three-hour block for eight weeks (32 stations).

3. Course title: Dental Health Education
Objectives:

a. To teach the basic principles of the educational process.

b. To develop in the students an understanding of these principles.

c. To introduce the various media which may be used in health education.

d. To study the preparation and use of visual and audiovisual teaching aids.

e. To apply basic and dental science information in developing educational materials.

f. To introduce elements to be considered in planning dental health education programs.

g. To provide field experiences.

Teaching methods:

a. Lecture

b. Demonstrations

c. Field experiences

Faculty required:

Lecturer—dental hygienist (1)

Space required:

Lecture room—(seating capacity 32)—two hours per week for one semester. (Field experiences to total 15 hours arranged during second semester.)

Each course in the curriculum was outlined in this manner. Where it was possible to identify the instructors who would teach specific courses, they were asked to prepare course outlines and to list the teaching materials and supplies needed. For courses which included laboratory sections, instructors also were asked to list the instruments and equipment required for the laboratory exercises.

In some instances, it was necessary to order large items of equipment before naming the instructor for a particular course. When this occurred, the program director outlined the course content and determined the equipment needs.

Interrelationships between subject areas became evident. The sequence in which courses would be offered and a tentative class schedule were developed. This completed the initial planning of the curriculum for the hypothetical dental hygiene program.

At this point, the program director was ready for further consultation with the architect on the plans for the teaching facility.

Planning the Facility

At the time the planning of the curriculum was initiated, the director also began to plan for a suitable teaching facility. After consulting with administrative officers of the college and the architect assigned to the project, it was decided that no existing college building could be renovated to meet the space requirements of the dental hygiene program and that a new facility would be needed.

Choosing the site. The next step was to select a building site. The following factors influenced the final choice:

- The site was within the limits of the expanding college campus.
- The site was close to frequent public transportation and was serviced by good access roads.
- Utilities, including heat from the central heating plant, were available.
- The site would accommodate a fifty-car parking area. (Parking to be reserved for faculty, staff, clinic patients and visitors. Student parking available elsewhere on campus.)

Copies of a survey showing the size, shape and contour of the site were obtained for the architect.

Information for the Architect. When the curriculum design was completed, the program director prepared specific information for the architect which included:

- An outline of the curriculum with identification of the courses to be taught in the hypothetical facility;
- A tentative schedule of classes;
- The number of persons to be accommodated—faculty, staff, students, and clinic patients;
- Rate of use of the facility during the academic year and the summer months;
- An outline of the space required:

  lecture room
  laboratory
  dental hygiene clinic
  clinic support areas—sterilization, dispensing
  X-ray operatories

darkroom
student dressing/lockerroom
student toilet facilities
student lounge area
student study area
patient reception—record area
patient toilet facilities
offices for director and faculty
office space for secretary and clerk
seminar room
storage areas—laboratory, clinic, records, janitorial supplies

In addition, the director prepared a brief description of the use which would be made of each area and noted special features which would be needed. For example, details to be included in designing specific areas were described as follows:

> ***Lecture room.*** Seating capacity for 32 students, equipped with movable tablet armchairs, a mobile demonstration bench with sink and electrical outlets, chalk board, bulletin board, projection screen, light-proof window shades, closed circuit television monitors, small storage cupboard.
>
> ***Student study-reference room (library).*** Seating capacity for 24 students, study tables, shelving for 500 volumes and 24 current periodicals, locked storage cupboards for journals and teaching materials.
>
> ***Clinic support area—sterilization and dispensing.*** Counter space with closed storage overhead and underneath to open inward, sink, waste bin, shelving to accommodate oil sterilizers for handpieces, autoclaves for instrument sterilization.

After completing a similar description for each space required, the director made notations about anticipated traffic flow which would influence the design of the facility. For example, the director noted the need to have the patient reception-record area adjacent to the building entrance and in close proximity to the dental hygiene clinic.

On the basis of the information supplied by the director, the architect developed the schematic design and suggested space allocations shown on pages 33 and 34.

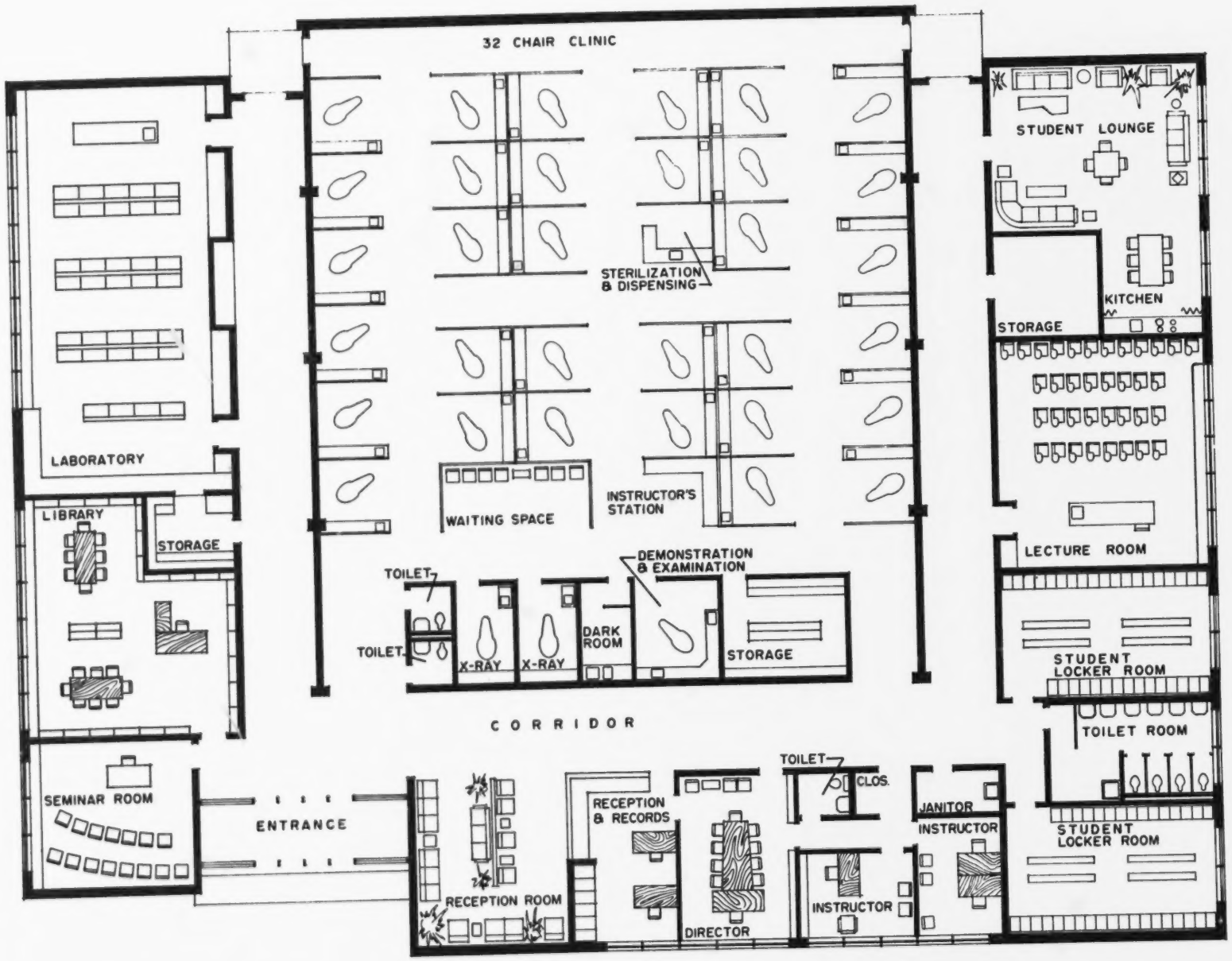
Before working drawings were made, the program director and the architect reviewed the schematic drawing and made some changes. As an example, it was decided that the dark-

room was too small for teaching purposes. A larger darkroom was provided by sacrificing part of the storage area and relocating the partitions between the darkroom and demonstration room, the demonstration room and storage area. The door to the storage area was relocated and the shelving redesigned.

After thorough study of the revised schematic drawings, the director and the architect were satisfied that the teaching facility was designed to meet the needs of the program.

In completing the working drawings, consideration was given to the choice of building materials, exterior and interior finishes, acoustics, illumination, the need for a communications system, the mechanical and electrical equipment to be installed (including an air compressor), and the requirements for fire protection and safety.

A FACILITY FOR TEACHING DENTAL HYGIENISTS



FLOOR PLAN

10 0 10 20 30 40 50

LINEAR SCALE

SPACE ALLOCATION—SCHEMATIC

Hypothetical School of Dental Hygiene—Two-Year Curriculum

Class Size of 32—Total Students 64

Basic Components

	Square Feet
Student Nonclinic Areas	
Lecture room—32 students	720
Storage—student supplies	150
Laboratory—32 students	1,200
Storage—laboratory supplies	100
Seminar room	300
Lounge	500
Study-reference room	500
Lockerrooms and toilets—64 students	1,000
Student-Patient Clinic Areas	
Clinic—32 student stations	3,200
Sterilizing and dispensing area	100
Instruction stations	100
Patient waiting space	100
2 X-ray rooms	150
Darkroom	30*
Examination and demonstration room	120
Storage	100
Patient-Reception and Records Area	
Reception room	450
Secretary-bookkeeper	100
Receptionist-secretary	100
File cabinets	50
Public toilets	100
Administration Area	
Office for Director	200
Office for 1 instructor	120
Office for 2 instructors	200
Storage—janitorial equipment and supplies	50
Total Net Area	9,740 sq. ft.

* Considered too small for teaching purposes

APPENDIX

Dental Hygiene Practice

The following definition of dental hygiene practice was adopted by the House of Delegates of the American Dental Hygienists' Association at Dallas in November, 1966.

"The dental hygienist, by direction of the dentist and within the limits of the dental practice acts, functions in general and specialty dental office practice, public health agencies, schools, hospitals, industrial organizations, departments of research, and the Armed Forces, performing duties which may include, but are not necessarily limited to:

Clinical Services. Removing stains and deposits from teeth with manual or mechanized instruments; applying preventive agents to oral structures; administering prescribed medicaments; obtaining and preparing nonsurgical, clinical and laboratory oral diagnostic tests for interpretation by the dentist; assisting the dentist at the chair.

Educational Services. Providing dental health education according to individual needs and recommendations based on current findings of dental research; motivating the public to accept and follow professional recommendations.

Community Services. Planning and conducting and evaluating dental health programs according to community needs; providing consultative service to health classes and conferences sponsored by civic and voluntary groups; conducting and evaluating pre-service and in-service programs for personnel in related health fields."

Sample Survey Form

(Letterhead—Local Dental Society)

Dear Dr. _____:

A committee composed of representatives of the (name of proposed parent institution) and the dental society . . . and other interested citizens . . . is attempting to determine the need for a local program in dental hygiene education.

The need for such a program . . . and its size . . . can be determined only from information supplied by you and your colleagues, the present and future employers of dental hygienists. That is why the questionnaire on the reverse side is sent to you.

Please answer the questions and return them to the committee in the enclosed stamped envelope. There is no obligation on your part. As a matter of fact, the questionnaire need not be signed.

Your help will be invaluable to us.

Sincerely,

Questionnaire in Regard to a Local Dental Hygiene Education Program

1. Do you now employ one or more dental hygienists?
   a. Yes _____.
   b. No _____.

2. If the answer to question No. 1 is "Yes":
   a. How many?
      (1) Full-time _____.
      (2) Part-time*_____.
   b. Would you employ additional hygienists if they were available?
      (1) Yes _____.
         (a) Number full-time _____.
         (b) Number part-time*_____.
      (2) No _____.

3. If the answer to question No. 1 is "No":
   a. Would you employ one or more dental hygienists if they were available?
      (1) Yes _____.
         (a) Number full-time _____.
         (b) Number part-time*_____.
      (2) No _____.

4. How many dental hygienists have you employed in the past five years?
   a. Full-time _____.
   b. Part-time*_____.

Comment:

* Less than full-time daily or weekly employment, or positions filled only part of a calendar year.

Dental Hygiene Curriculum

The components of the basic curriculum for dental hygiene education are prescribed by the Council on Dental Education of the American Dental Association. Subjects are grouped in three major categories and the minimum hours recommended for each category are: basic (and dental) sciences—600 hours, clinical dental hygiene—700 hours, and cultural/miscellaneous—350 hours. An additional 200 hours of electives are recommended for a total of 1,850 hours of instruction. Subject areas are listed and described briefly on the following pages.

Subject areas are listed individually but frequently are offered in combination (e.g. anatomy-physiology). Clinical dental hygiene encompasses a number of subject areas. Though not listed, clinical practice will be preceded by lectures, demonstrations and laboratory-clinic exercises in preventive dentistry and prophylaxis techniques. In the other subject areas listed under clinical practice, information also will be related to clinical use. The approach to providing the necessary knowledge is the prerogative of the program director in consultation with the faculty members who will be responsible for these areas of instruction. Correlation of basic and dental science information and the application in clinical practice should be a principal objective in designing the curriculum.

Curriculum Components

Basic and Dental Sciences	600 hours
Anatomy	
Chemistry	
Dental Anatomy	
Embryology and Histology	
Microbiology	
Nutrition	
Pathology	
Pharmacology	
Physiology	
Clinical Dental Hygiene	700 hours
Chairside Assisting	
Clinical Practice	
Dental Materials	
Orientation to Dental Practice	
Radiology	
Cultural/Miscellaneous	350 hours
Dental Health Education	
English	
Ethics, History, Jurisprudence, Office Procedures	
Medical and Dental Emergencies	
Psychology	
Public Health	
Sociology	
Speech	
Electives/Additional Courses	200 hours
Total	1,850 hours

SUBJECT AREA DESCRIPTIONS

Basic Sciences

Anatomy. Study of the human body with special emphasis on the anatomy of the head and neck.

Chemistry. An introduction to inorganic, organic and physiological chemistry with emphasis on the chemistry of body functions.

Dental Anatomy (Tooth Morphology). Study of the development and structure of human teeth.

Embryology and Histology. Study of the development of the human organism; microscopic anatomy, study of cells, tissues and organic structures, with emphasis on oral embryology and histology.

Microbiology. Study of microorangisms and their activities.

Nutrition. Basic principles of nutrition in relation to health, diet in reference to body tissues in general and oral tissues in particular.

Pathology. The nature of diseases affecting the human body; diseases and abnormalities of the hard and soft tissues of the oral cavity.

Pharmacology. Study of drugs with special consideration of those used in dentistry.

Physiology. Study of the functions of organs and systems.

Clinical Dental Hygiene

Chairside Assisting. Study of the duties of the dental assistant; clinical experience in chairside assisting.

Clinical Dental Hygiene. Study of the measures which prevent oral disease and promote oral health; laboratory and *clinical practice* of techniques.

Dental Materials. Survey of physical and chemical properties of dental materials; laboratory and clinical experience in manipulation of dental materials.

Orientation to Dental Practice. Dentistry as a profession; lectures and demonstrations in dental procedures including those in the dental specialties.

Radiology. Fundmentals of intra- and extra-oral radiographic techniques; laboratory and clinical practice in exposure, processing of dental radiographs.

Cultural/Miscellaneous

Dental Health Education. Methods and materials used in teaching dental health.

English. A basic course in written communication.

Ethics and Office Procedures. Relationship of the practice of dental hygiene to dentistry; economics of office management.

History and Jurisprudence. The development of the art and science of dentistry and dental hygiene; the law as related to the practice of dentistry and dental hygiene.

Medical and Dental Emergencies. Study of emergency treatment measures with special emphasis on those applicable in the dental office.

Psychology. Study of the processes of human behavior.

Public Health. Survey of the theory and practice of preventive dentistry and public health.

Sociology. Study of the structure and functions of society.

Speech. Basic course in theory and practice of public speaking.

Student Instruments and Equipment

Laboratory

The kinds of laboratory exercises which are a part of the instruction in subjects such as dental anatomy and dental materials will govern the selection of instruments to be loaned to or purchased by the dental hygiene students. For example, if waxes, gypsum products, impression materials and metals are manipulated in dental materials, the instruments used in each procedure will be required.

Clinical

Preclinical instruction in the techniques of oral prophylaxis usually is introduced early in the first year of the dental hygiene program. Instruments must be available for use at that time. Straight handpieces may be loaned or rented or the students may be required to purchase them. Selection of scalers, curettes and files will be the prerogative of the program director and clinical instructors. The cost of a complete kit which includes two sets of most hand instruments will be approximately $200.00 per student.

Required instruments and equipment may include:

Mouth mirrors
Explorers
Cotton pliers
Scalers—six to eight designs
Curettes
Files
Periodontal probes
Porte polishers
Prophylaxis angle handpiece
Assorted cups and brushes

Napkin holder
Dappen (pumice) dishes
Scissors
Sharpening stones
Hand mirror
Demonstration toothbrushing model
Patient apron
Instrument and supply case if storage is not available at each clinic station

Optional—loan or purchase:

Saliva ejectors
Air tips for units
Cotton roll holders
X-ray film holders

Laboratory and Clinic Equipment

The equipment needed for instruction in the laboratory and clinical aspects of dental hygiene is presented here. Equipment for the laboratory sections of courses in human anatomy, physiology, microbiology and chemistry is not included. It is assumed that the basic science laboratories will be equipped by the respective departments of the college or university.

Laboratory Equipment

The laboratory exercises included in the courses in dental materials, dental anatomy, oral histology, oral pathology and preclinical techniques will govern the selection and purchase of equipment.

For example, elsewhere in this handbook, the purchase of microscopes and manikin heads is mentioned. Individual microscopes for student use will be required only when instructional material in oral histology and oral pathology is presented through this medium. Manikin heads and attachments will be needed in teaching preclinical techniques. Whether these techniques will be taught solely in the laboratory or in a combination of laboratory and clinical environment will influence the purchase of this type of equipment.

Equipment for use in the course in dental materials will be the greatest expense. Again, the dental materials which are used by the students in various laboratory procedures will govern the type and quantity of equipment purchased.

The following list will permit the use of a variety of materials and may be used as a guide when planning the design of the laboratory and the selection of equipment:

Dental engines
Straight handpieces
Dental amalgamators
Hydrocolloid conditioner units

Hydrocolloid impression trays
Alginate impression trays
Pattern investor
Inlay furnace
Casting machine and guard
Torch, hose assembly and tips
Dental lathe and splash pan
Spot welder
Plaster and stone bins
Vibrators
Model trimmer

A laboratory for 32 students which is provided with the suggested equipment would cost approximately $10,000. In addition, the cost of laboratory benches and an air compressor sufficient for the needs of the laboratory and clinic should be included in equipment estimates.

Clinic Equipment

The design of the clinic facility will influence the kind of equipment purchased. For example, if storage for sterile instruments and bulky cotton and paper goods is built-in at each clinic station, a mobile instrument tray may serve in lieu of the traditional instrument cabinet. *Dental equipment is undergoing many modifications and all types of clinical equipment should be considered.*

The conventional items of equipment for a clinic station include:

Dental chair
Dental unit (including air driven handpiece,
air and water syringes)
Operating light
Operating stool
Instrument cabinet (fixed or mobile)

The cost to equip each clinic station will depend upon the type of equipment selected. The range from $3,800 to $5,000 per station is suggested as a guide.

Equipment for an X-ray operatory will cost from $3,500 to $4,000. Equipment for a darkroom will cost approximately $1,200. The sterilization of instruments and handpieces will require the purchase of autoclaves, ultrasonic cleaners and oil sterilizers. Provision also

should be made for the purchase of ultrasonic scaling devices. If the oral evacuation system at each station is not adequate for use with the ultrasonic scaler, mobile evacuation equipment will be needed. Approximately $9,000 to $11,000 should be provided to equip the demonstration operatory.

Reference Books and Periodicals

BOOKS

The following list is offered as a guide in the selection of books for a specialized reference library. Instructors will offer suggestions for additional library acquisitions. It should be noted that the list does not include references in the basic sciences or in cultural subjects.

The asterisks denote those texts which are frequently suggested as required texts for dental hygiene students.

Allen, Hunter & McFall
Periodontics for the dental hygienists
Philadelphia, Lea & Febiger, 1967

American Dental Association
Practical manual on the medical and dental use of X-rays with control of radiation hazards

Anderson, George
Practical orthodontics
St. Louis, C. V. Mosby Co., 1960

Anderson, W. A. D.
Pathology
St. Louis, C. V. Mosby Co., 1966

Anderson, W. A. D.
Synopsis of pathology
St. Louis, C. V. Mosby Co., 1964

Bernier, Joseph L.
Management of oral disease
St. Louis, C. V. Mosby Co., 1959

Beube, Frank E.
Periodontology
New York, MacMillan Co., 1953

Bevelander, Gerrit
Atlas of oral histology and embryology
Philadelphia, Lea & Febiger, 1967

Bevelander, Gerrit
Essentials of histology
St. Louis, C. V. Mosby Co., 1965

Bevelander, Gerrit
Outline of histology
St. Louis, C. V. Mosby Co., 1963

Bhaskar, S. N.
Synopsis of oral histology
St. Louis, C. V. Mosby Co., 1962

Bhaskar, S. N.
Synopsis of oral pathology
St. Louis, C. V. Mosby Co., 1965

Blakiston's new Gould
medical dictionary
New York, McGraw-Hill, 1956

Boucher, Carl O.
Current clinical dental terminology
St. Louis, C. V. Mosby Co., 1963

Boyle, Paul E.
Histopathology of the teeth (Kronfeld's)
Philadelphia, Lea & Febiger, 1949

*Brauer, John C. ed.
The dental assistant, 3rd ed.
New York, McGraw-Hill (Blakiston Division), 1964

Brauer, John C.
Dentistry for children
New York, McGraw-Hill, 1964

Brescia, Nicholas
Applied dental anatomy
St. Louis, C. V. Mosby Co., 1961

Bunting, Russell W.
Oral hygiene
Philadelphia, Lea & Febiger, 1957

*Campbell, Ralph H.
Dental hygienist in private practice
Dubuque, Iowa, William C. Brown Co., 1964

Carnahan, Charles W.
Dentist and the law
St. Louis, C. V. Mosby Co., 1965

Cheraskin, Emanuel
Diagnostic stomatology
New York, McGraw-Hill, 1961

Cinotti, William R.
Applied psychology in dentistry
St. Louis, C. V. Mosby Co., 1964

Dobbs, Edward
Pharmacology and oral therapeutics
St. Louis, C. V. Mosby, 1961

Dorland's
Illustrated medical dictionary (current edition)
Philadelphia, W. B. Saunders Co.

*Dorland's
Pocket medical dictionary (current edition)
Philadelphia, W. B. Saunders Co.

Ennis & Berry
Dental roentgenology, 6th ed.
Philadelphia, Lea & Febiger, 1967

Finn, Sidney B.
Clinical pedodontics
Philadelphia, W. B. Saunders Co., 1962

Francis & Wood
Dental pharmacology and therapeutics
Philadelphia, W. B. Saunders Co., 1961

Gallagher, Walter Neal
Dental roentgenology review
New York, William-Frederick Press, 1967

Glickman, Irving
Clinical periodontology, 3rd ed.
Philadelphia, W. B. Saunders Co., 1964

Goldman, Henry
Introduction to periodontia, 3rd ed.
St. Louis, C. V. Mosby Co., 1962

Goldman, Schluger, Fox & Cohen
Periodontal therapy
St. Louis, C. V. Mosby Co., 1964

Graber, Touro M.
Textbook of orthodontics
Philadelphia, W. B. Saunders Co., 1966

Hanlon, John J.
Principles of public health administration
St. Louis, C. V. Mosby Co., 1964

Hine, Maynard K. ed.
Review of dentistry—questions and answers, 4th ed.
St. Louis, C. V. Mosby Co., 1966

Hollinshead, Byron S.
Survey of dentistry in the United States
American Council on Education, 1960

Kerr, Donald A.
Oral diagnosis
St. Louis, C. V. Mosby Co., 1965

*Kerr & Ash
Oral pathology for dental hygienists, 2nd ed.
Philadelphia, Lea & Febiger, 1965

Kraus & Jordan
Human dentition before birth
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PERIODICALS

In addition to reference books, a library for dental hygiene students should include a selection of professional journals. To aid in the development of bibliographic material, a reference library should first include *The Index to Dental Literature*. It is suggested that this reference tool include volumes dating back ten years.

Subscriptions to the following publications and journals* are suggested as a nucleus:

Accepted Dental Remedies—annual publication
Source: American Dental Association

American Journal of Public Health
Source: American Public Health Association

Dental Abstracts
Source: American Dental Association

Dental Health
Source: British Dental Hygienists' Association

Journal of the American Dental Assistants' Association

Journal of the American Dental Association

Journal of the American Dental Hygienists' Association

Journal of Dental Education
Source: American Association of Dental Schools

Journal of Dentistry for Children
Source: American Society of Dentistry for Children

Journal of Periodontology
Source: American Academy of Periodontology

Journal of School Health
Source: American School Health Association

Oral Research Abstracts
Source: American Dental Association

Oral Surgery, Oral Medicine, and Oral Pathology
Source: The C. V. Mosby Company

Public Health Reports
Source: U. S. Department of Health, Education, and Welfare, Public Health Service

Selected State Dental Association Journals

* Back issues of some of these journals suitable for binding may be purchased or may be solicited from local dentists, dental hygienists and dental assistants.

Addresses: Associations and Publishers

American Academy of Periodontology
2620 Fletcher Street
Chicago, Illinois 60618

American Association of Dental Schools
211 East Chicago Avenue, Suite 1610
Chicago, Illinois 60611

American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

American Dental Assistants' Association
211 East Chicago Avenue, Suite 1230
Chicago, Illinois 60611

American Dental Hygienists' Association
211 East Chicago Avenue, Suite 1616
Chicago, Illinois 60611

American Public Health Association, Inc.
883 Broadway
Albany, New York 12207

American School Health Association
515 East Main Street
Kent, Ohio 44240

American Society of Dentistry for Children
211 East Chicago Avenue, Suite 920
Chicago, Illinois 60611

British Dental Hygienists' Association
Publisher: Henry Evan and Company Ltd.
53, Paddington Street
London W. 1., England

William C. Brown Company Publishers
135 South Locust Street
Dubuque, Iowa 52003

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Philadelphia, Pennsylvania 19105

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New York, New York 10022

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